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Guidance for the Future Use of NASN
(This Guideline Replaces OAQPS Number 1.2-020)

(U.S.) Environmental Protection Agency
Research Triangle Park, NC

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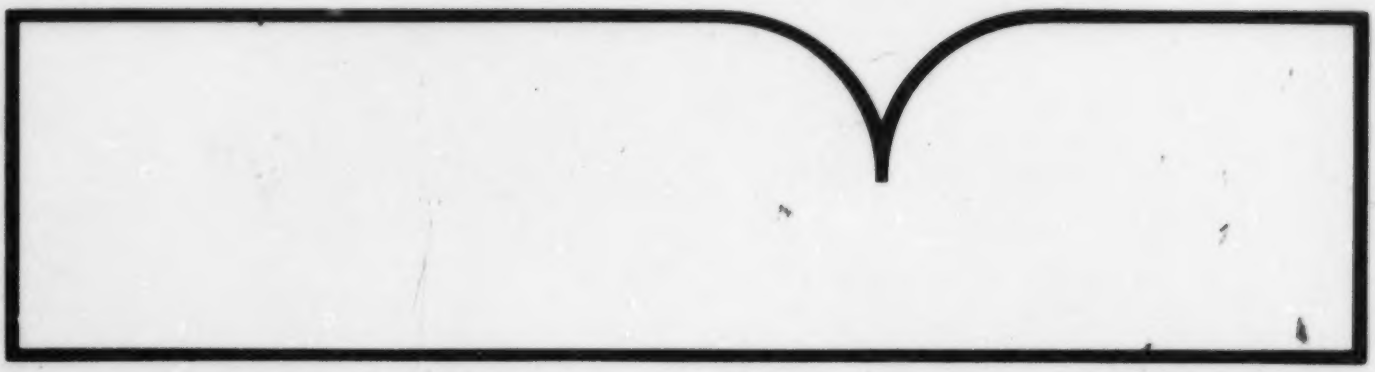

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16. ABSTRACT

This guidance is a replacement for OAQPS #1.2-020, "Guidance for Decentralization and Continued Operation of the NASN," September 1974. This material should clarify the integration of the NASN into the ambient monitoring program discussed in the draft Air Moniotring Strategy Document and should be used by Regions in their evaluation of state and local monitoring programs.

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(This Guideline replaces OAQPS #1.2-020)

U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Air Quality Planning and Standards

Research Triangle Park, North Carolina

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June, 1977

Monitoring and Data Analysis Division
Research Triangle Park, N.C.

BACKGROUND

Over the past year, The Standing Air Monitoring Work Group (SAMWG) developed a series of monitoring issue papers for the criteria pollutants which formed the basis of the Air Monitoring Strategy for SIP's. The purpose of the air monitoring strategy analysis was to present recommendations for an improved and more efficient national monitoring system that could provide timely and accurate data to meet the priority needs of EPA and the State and local agencies.

Several Regions have asked for clarification regarding integration of the NASN into the ambient monitoring program discussed in the draft Air Monitoring Strategy Document. Therefore, we have prepared the following material which should be used by the Regions in their evaluation of State and local monitoring programs. This material should be used during the negotiations with State agencies in the development of the State monitoring plan required under the Regional Operational Guidance output for monitoring. The memorandum "Implementing SAMWG Recommendations," April 22, 1977 from E.F. Tuerk to Deputy Regional Administrators, describes the accomplishments which must be addressed in the monitoring plan. Several of these accomplishments deal with the designation of SLAMS/NAQTS networks. The guidance described below describes how the existing NASN sites are to be considered during the negotiation/designation process. This guidance should be considered as a replacement for OAQPS #1.2-020, "Guidance for Decentralization and Continued Operation of the NASN," September, 1974.

INTRODUCTION

In the past, data from the NASN network formed the sole basis for EPA to perform national SO_2, TSP and NO_2 air quality trends analysis. However, with the rapid increase in State and local monitoring activities in the last seven years, sufficient air qualty data (in terms of geographical and time

coverage) exists so that EPA no longer needs to rely on the NASN as the only source of trends data.

For SO_2 and NO_2, methodology problems have substantially diminished the usefulness of past NASN air quality data. The temperature sensitivity of the SO_2 West-Gaeke method has cast doubt on the validity and accuracy of past air quality information; although we believe that the National trends portray a reasonable picture of ambient air quality changes that have occurred.

Similarly, the inaccuracies in the NO_2 Jacobs-Hochheiser (J-H) method, eliminates the NASN as potential source of long-term trend data. The NASN was useful, however, by serving as a means of evaluating other measurement techniques (i.e., sodium arsenite, TGS and TEA) to replace the J-H method.

For TSP, the NASN has, and continues to provide a source for determining ambient trends as well as for the non-criteria pollutants determined from the hi-vol filter samples. The retention of NASN hi-vol sites are important for two reasons. First, the NASN and in the future National Air Quality Trend Sites (NAQTS), will serve as the primary source of filters for analysis of trace materials. By retaining existing NASN sites as the filter sample source, we are able to continue trends analysis for trace metals, non-metal inorganics and BaP/BSO. Further, by maintaining a filter storage bank, we are able to do retrospective analysis for additional pollutants which may become of interest in the future. This will provide a ready means of determining air quality trends.

Second, TSP data from NASN sites can continue to be used for long-term trends analysis purposes. In some locations, the trend data base goes as far back as the 1950's, making these sites irreplaceable.

NASN TSP SAMPLING

The NASN TSP hi-vols should be given priority by the Regions in their review of monitoring networks for purposes of establishing the National Air Quality Trend Stations (NAQTS) monitoring network. This means that NASN hi-vol sites should be reviewed first to determine if they meet the NAQTS selection criteria; if not, other State and local sites should be selected for NAQTS. As many of the NASN hi-vol sites should be retained as possible as either a NAQTS or SLAMS. Those NASN sites which do not meet NAQTS selection criteria or are not considered useful for SLAMS monitoring, should be discontinued.

All NASN sites should be formally designated either a NAQTS or SLAMS (or discontinued) by the end of FY-1978. However, filters for all existing NASN sites (whether they are designated as NAQTS or SLAMS) should continue to be submitted through the end of CY-1978 so that a complete calendar year of sampling will be obtained enabling the calculation of annual averages.

OAQPS will continue to support the analysis of hi-vol filter samples for trace materials. Because of limited resources for trace material analysis, between 250 and 300 NAQTS sites will be selected by OAQPS for submission of filters. The selection process will occur after the Region and State have designated their SLAMS/NAQTS networks. Thus, the designation of sites for submittal of filters will occur at different times for different Regions but in no case will occur later than the end of FY-1978.

Beginning in CY-1979, the NASN will have been phased out, and the subset of the NAQTS network (selected by OAQPS) will serve as the source of filter samples.

SELECTION OF NAQTS SITES FOR FILTER SUBMISSION

Any former TSP NASN site designated as a NAQTS site will be selected for continued submittal of filters. Additional filters will be requested from other NAQTS (non-NASN) so that there were at least:

a) two sites in any urbanized area greater than 250,000 population (if the area is currently meeting the secondary standards only one site will be selected)

b) one site in any urbanized area greater than 100,000 but less than 250,000 population

One filter should be returned to EMSL out of every twelve days. (This is equivalent to every other filter if a one in six day sampling schedule were followed.) The filters should be sent to EMSL on a quarterly basis no later than 45 days after the end of the quarter. Figure 1 shows in diagram form how the site selection process will work.

SUPPLY OF GLASS FIBER FILTERS BY OAQPS

OAQPS will continue to make available a supply of glass fiber filters for use by State and local agencies in their TSP hi-vol networks during CY-1978. ORD (EMSL-RTP) is in the process of procuring 350,000 filters with a scheduled delivery date anticipated sometime in October, 1977. Additional specifications have been added to this year's procurement to eliminate the problems encountered with the supply currently in use. (New specifications have been included for phosphates, brittleness and mass.)

Beginning in CY-1979, OAQPS will supply filters only for NAQTS sites. Filters will also be supplied to any State desiring to use them for their SLAMS network as well. In early 1978, the Regions should inform OAQPS which States will want a supply of filters for their SLAMS networks for CY-1979 sampling.

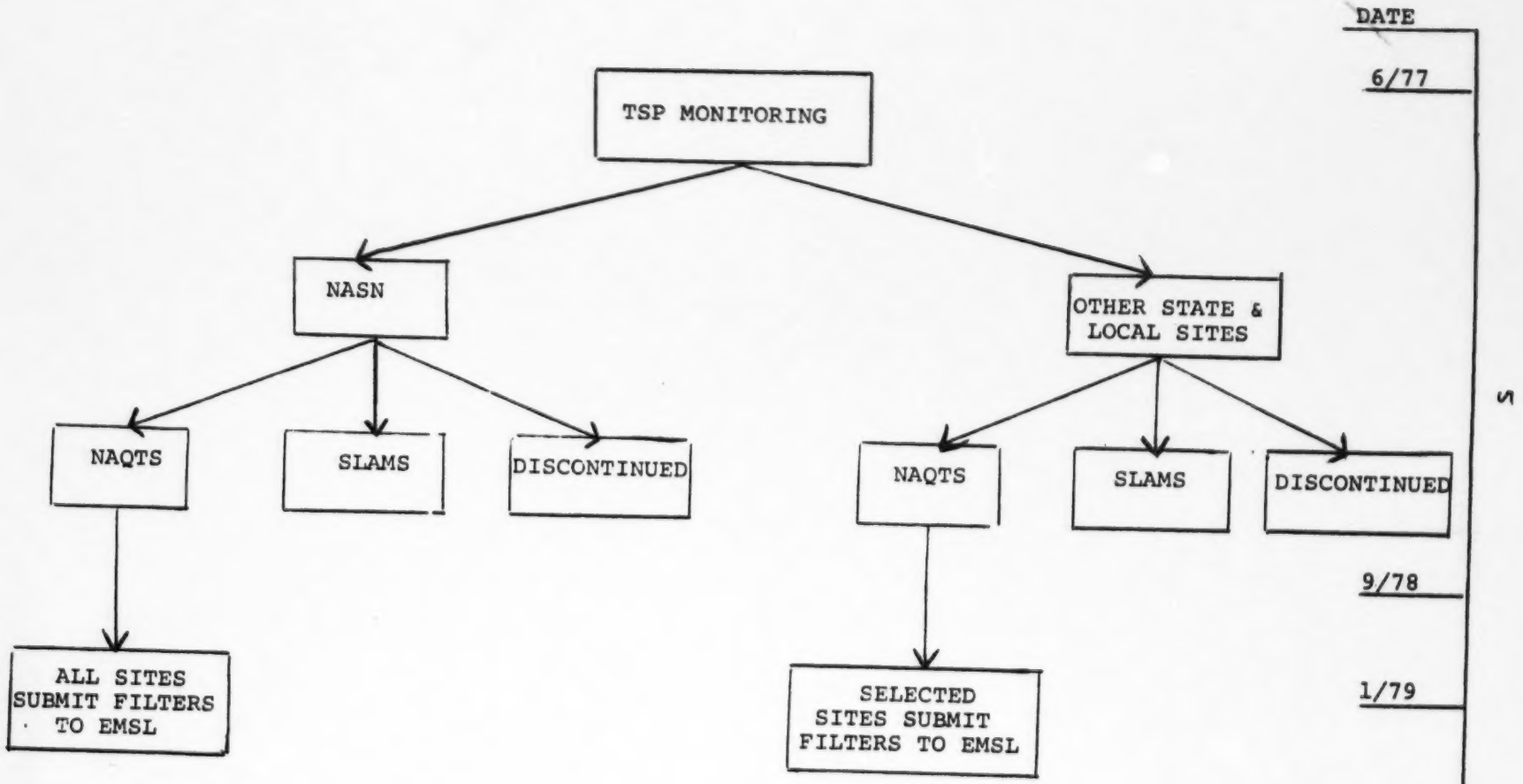

FIGURE 1 - PROCESS OF SELECTING HI-VOL SITES FOR SUBMITTING FILTERS TO EMSL

NASN SO_2/NO_2 BUBBLER SAMPLING

The NASN gas bubblers (SO_2/NO_2) should not receive any special treatment by the Regions during their evaluation of the usefulness of stations in State and local air monitoring networks for two reasons: a) because of the methodology problems; and b) the availability of numerous other sites for national trends assessments. This means that OAQPS will no longer require the retention of these stations nor continue to require prior approval for relocation or shutting down of an NO_2/SO_2 NASN site. When NAQTS or SLAMS stations are designated, the NASN stations should be considered in the same way as any other bubbler in the State or local network.

Further, OAQPS, in the future, will be using primarily the NAQTS data for trends analysis purposes. SAMWG has recommended that NAQTS stations use continuous instrumentation to the maximum extent possible. Therefore, it is anticipated that few NASN stations will be included in the NAQTS network unless they can be upgraded by being equipped with continuous instruments.

SO_2 NASN sites included in the SLAMS network should be equipped with a temperature controlled bubbler box to minimize sample loss. These bubbler boxes are generally available from at least two vendors.

If the Regional Office is still performing the analysis of bubbler samples, consideration should be given to discontinuing this analysis. The only exception would be in the situation where the NASN is used as a quality assurance check on other State or local air monitoring sites.